DETAILED ACTION

1. This communication is in response to applicant's 07/12/2010 Amendment in the application of Proust et al. for a "**MARKING OF A DATAGRAM TRANSMITTED OVER AN IP NETWORK AND TRANSMISSION OF ONE SUCH DATAGRAM** " filed 06/26/2006. This application is a national stage entry of PCT/FR04/03157 , International Filing date: 12/08/2004, and claims foreign priority to 0315470 , filed 12/26/2003 in France. This application is a Request for Continued Examination (RCE) under 37 C.F.R. 1.114 filed on July 12, 2010. The amendment and response have been entered and made of record. Claims 31-48 are pending in the present application.

2. The applicant should use this period for response to thoroughly and very closely proof read and review the whole of the application for correct correlation between reference numerals in the textual portion of the Specification and Drawings along with any minor spelling errors, general typographical errors, accuracy, assurance of proper use for Trademarks ™, and other legal symbols @, where required, and clarity of meaning in the Specification, Drawings, and specifically the claims (i.e., provide proper antecedent basis for “the" and “said" within each claim). Minor typographical errors could render a Patent unenforceable and so the applicant is strongly encouraged to aid in this endeavor.

Claim Rejections - 35 USC ' 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 31-34, 38-40, 42 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tappan (US#6,473,421) in view of Ryu et al. (US#6,781,949).

Regarding claim 31, the reference disclose methods and system for forwarding datagram in a IP communications network, according to the essential features of the claims. Tappan discloses a method of marking a datagram (FIG .5 shows IP datagram tag and labeled see col. 3 lines 33-41) transmitted in a communications network comprising routers interconnected (Internetwork communications based on operations of routers see col. 1 lines 9-11) by transmission links from a datagram source terminal (FIG. 6 depicts transmission of a packet from a source router S) connected to a first router (FIG.6 shows I-ASBR) of the network to a datagram destination (FIG. 6 depicts a destination node D) terminal connected to a second router (FIG.6 shows E-ASBR) of the network (FIG. 6 depicts transmission of a packet from a source router S

to a destination node D. The forwarding path passes through a routing domain 44 to which neither S nor D belongs see coin: 5 lines 46-49) the datagram comprising a vector formed of ordered fields each containing a reference the method comprising the following steps executed when a router receives the datagram (when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col :2 lines 28-35): Reading a value in the index field of the datagram; reading the reference contained in the field of the vector of the datagram designated by the read index value (the IP process inspects the IP datagram's header 38, and in particular its IP destination-address field. That field's contents identify the host system to which the datagram's contents are to be directed see, the datagram further comprising a vector index field, and each router having a table of references (a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see coin:2 lines 28-35); and forwarding the datagram to a next router of the network (Routers inform other routers of the host systems to which they can forward communications packets, and they employ such information obtained from other touters to populate their forwarding tables see col :2 lines 6-10 also when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding

table, it reads that route's fields that specify the interface over which it should forward the packet see col: 2 lines 28-35).

However, Tappan does not disclose expressly wherein if the table of the router does not contain the read reference, writing a reference selected in the table of the router into the field of the vector of the datagram designated by the read index value; writing into the index field of the datagram a value equal to the read value incremented by one unit. In the same field of endeavor, Ryu et al teach if the table of the router does not contain the read reference (A node's Route Table entry contains primary and secondary routes to reach it, with respect to a plurality of Quality of Service (QoS) routing metrics (i.e., such as bandwidth and delay). Routes are represented by the "next hop address" (gateway node) through which the node can be reached and the level of QoS that the route is capable of supporting see coin: 3 lines 2-8) writing a reference selected in the table of the router into the field of the vector of the datagram designated by the read index value writing into the index field (if the RUR transmitter is not currently listed as the primary or secondary gateway, and if the RUR represents an improvement over the existing primary gateway entry, then the primary gateway information is moved to the secondary fields and the RUR transmitter and associated metric data from the RUR is written into the primary gateway fields, Otherwise, if the RUR represents an improvement over the existing secondary gateway entry, then the RUR transmitter and associated metric data from the RUR is written into the secondary gateway fields see coln:18 lines 46-56). Of the datagram a value equal to the read value incremented by one unit (The LQ filter value is incremented for each received packet and decremented for each missed packet. Missed packets are detected using the transmitter sequence number (last received and current received sequence numbers). In one

illustrative embodiment the increment and decrement values can be set for an expected link throughput (i.e., setting the increment and decrement values to 1 and 3 respectively will result in a stable LQ value if the link is operating at 75%) see coln:24 lines 44-51). Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ryu et al in the system of Tappan The method of Tappan can be implemented on any type of method if the table of the router does not contain the read reference, writing a reference selected in the table of the router into the field of the vector of the datagram designated by the read index value; writing into the index field of the datagram a value equal to the read value incremented by one unit which is taught by Ryu et al with a motivation in order to provide a network protocol which is capable of rapidly adapting to network changes.

Regarding claim 32, note that Tappan discloses the method, wherein the references contained in the table of references of the router are associated with respective routes in the network (When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35).

Regarding claim 33, Note that Tappan discloses the method of, wherein the table of references of the router is a portion of a routing table of the router, the portion corresponding to a single destination prefix contained in the routing table (When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it

reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28- 35).

Regarding claim 34, note that Tappan discloses the method, wherein the datagram belongs to a flow of datagrams sent successively by the source terminal (FIG. 6 depicts transmission of a packet from a source router S) to the destination terminal (FIG. 6 depicts a destination node D), and wherein the read reference is identical to a reference written by the router at the time of forwarding an earlier datagram of the flow (setting the Forwarding Address field to ABR2's address, and placing in the MPLS Label field a label value, say, T6, that identifies the location of ABR2's forwarding-table entry that tells where to forward packets destined for E-ASBR. ABR2 must then decide into which areas to flood the thus-generated LSA. (Since it is originating a new LSA, it also puts its own ID in the Adverting Router field.)See col9 lines 24-31)

Regarding claim 38, Note that Tappan discloses a method of forwarding a datagram by a router of a communications network (Internetwork communications based on operations of routers see col :1 lines 9-11), the router having a table of references associated with respective routes between the router and a destination terminal of the datagram connected to the network (network is a geographically distributed collection of interconnected subnetworks, such as local area networks (LAN), that transport data between network nodes The network topology is defined by an arrangement of network nodes that communicate with one another, typically through one or more intermediate network nodes, such as routers and switches see col :1 lines 22-26)., the forwarding method comprising the following steps: on reception of the datagram by

the router, reading a reference in the datagram; and looking up the read reference in the table of references of the router (each ABR(area border router) maintains a separate LSDB for each of its routing areas. In operation, network nodes in a routing area "flood" LSAs (link-state data base) to ensure that every node in that area populates its LSDB with the same set of routing and topology information see col: 5 lines 3-7), if the table contains the read reference, forwarding the datagram along the route associated with the read reference, if not, selecting a reference in the table and forwarding the datagram along the (when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col :2 lines 28-35) route associated with the selected reference; in which method the read reference was written beforehand into the datagram using the marking method of.

Regarding claim 39, Note that Tappan discloses the method, wherein the reference selected in the table of references of the router is also written into the datagram (when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col :2 lines 28-35) using the marking method of.

Regarding claim 40, Note that Tappan The method, wherein the table of references is associated with a single destination prefix contained in a routing table of the router (prefixes may be aggregated as a single address prefix 128.52.10.0/24 which contains both IP address ranges see col :2 lines 50-52).

Regarding claim 42, Note that Tappan discloses The method of, wherein the table of references further comprises, for each reference of the table (when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col :2 lines 28-35), a load value assigned to the route associated with the reference (Each switch associates a local virtual path/virtual channel indicator (VPI/VCI) with a channel or path that runs through it. When an ATM switch receives a cell, it consults the cell's VPI/VCI field to identify by table lookup the interface through which to forward the cell. It also replaces that field's contents with a value indicated by the table as being the next switch's code for that path or channel, and it sends the resultant cell to the next switch see coin: 4 lines 1-9). and wherein the selected reference corresponds to a minimum load value of the routes associated with references contained in the table of references (When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35).

Regarding claim 46 Tappan discloses a router (FIG. 6 depicts transmission of a packet from a source router S) comprising: means for reading a value in a vector index field of a datagram received by the router; means for reading a reference contained in a vector field of the datagram designated by the read index value (the IP process inspects the IP datagram's header

38, and in particular its IP destination-address field. That field's contents identify the host system to which the datagram's contents are to be directed see, the datagram further comprising a vector index field, and each router having a table of references (a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see coin: 2 lines 28-35) means for storing a table of references; means for associating references in the table with routes (When a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet and the link-layer address of the router to which the interface should send the packet for further forwarding see col: 2 lines 28-35); means for looking up a read reference in the table of references of the router, adapted to command forwarding of the datagram along the route associated with the read reference if the table of references contains the read reference(In addition to other information, each entry includes a label, which is an index into the forwarding table of the label-switching router that receives it. When a router receives such a packet, it consults the forwarding-table entry that the label specifies and replaces that label with a replacement label that the specified forwarding-table entry contains. That replacement label is typically one that the next router on the path to the requested destination has asked to be included in packets sent to it and intended for the destination with which the forwarding table is associated see coin:3 lines 6-16) means for

selecting a reference in the table of references, adapted to be activated if the table of references does not contain the read reference and to command forwarding of the datagram along the route associated with the selected reference (When an ATM switch receives a cell, it consults the cell's VPI/VCI field to identify by table lookup the interface through which to forward the cell. It also replaces that field's contents with a value indicated by the table as being the next switch's code for that path or channel, and it sends the resultant cell to the next switch. In other words, the function performed by the VPI/VCI field enables it to serve as the stack's top label see col:4 lines 3-10) ; and Tappan does not disclose means for writing a value equal to the read value incremented by one unit into the index field of the datagram. Ryu et al from the same or similar endeavor teach (The LQ filter value is incremented for each received packet and decremented for each missed packet. Missed packets are detected using the transmitter sequence number (last received and current received sequence numbers). In one illustrative embodiment the increment and decrement values can be set for an expected link throughput (i.e., setting the increment and decrement values to 1 and 3 respectively will result in a stable LQ value if the link is operating at 75%) see coln:24 lines 44-51). Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ryu et al in the system of Tappan The method of Tappan can be implemented on any type of method means for writing a value equal to the read value incremented by one unit into the index field of the datagram which is taught by Ryu et al with a motivation in order to provide a network protocol which is capable of rapidly adapting to network changes.

Regarding claim 47, Tappan discloses the router (FIG. 6 depicts transmission of a packet from a source router S). Tappan disclose all the subject matter with the exception of further

comprising means for writing the selected reference into the vector field of the datagram designated by the read index value. Ryu et al from the same or similar field of endeavor teach further comprising means for writing the selected reference into the vector field of the datagram designated by the read index value (The LQ filter value is incremented for each received packet and decremented for each missed packet. Missed packets are detected using the transmitter sequence number (last received and current received sequence numbers). In one illustrative embodiment the increment and decrement values can be set for an expected link throughput (i.e., setting the increment and decrement values to 1 and 3 respectively will result in a stable LQ value if the link is operating at 75%) see coln:24 lines 44-51)

Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ryu et al in the system of Tappan The method of Tappan can be implemented on any type of method further comprising means for writing the selected reference into the vector field of the datagram designated by the read index value which is taught by Ryu et al with a motivation in order to provide a network protocol which is capable of rapidly adapting to network changes.

6. Claims 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tappan (US# 6,473,421) in view of Ofek et al (US# 7,343,619).

Regarding claim 43, Tappan discloses a terminal (FIG. 6 depicts transmission of a packet from a source router S) comprising: means for producing a datagram to be sent by the terminal (FIG. 6 depicts transmission of a packet from a source router S to a destination node D. The forwarding path passes through a routing domain 44 to which neither S nor D belongs see coin: 5

lines 46-49) the datagram comprising an ordered field vector and a vector index field; means for writing an initial reference into each field of the vector of the datagram to be sent by the terminal (when a router receives an IP datagram, it searches through the prefix entries in the forwarding table to find the longest prefix that matches the incoming packet's destination address. When it finds that route in its forwarding table, it reads that route's fields that specify the interface over which it should forward the packet see col :2 lines 28-35) and;

Tappan discloses all the subject matter of the claimed invention with the exception of means for writing an initial value into the index field of the datagram to be sent by the terminal. Ofek et al from the same or similar endeavor teach means for writing an initial value into the index field of the datagram to be sent by the terminal (the corresponding header fields are computed, the header is assembled, and the corresponding data bytes appended as a payload. If the TCP layer entity has to acknowledge the reception of data bytes along the other direction of the TCP connection, the acknowledgement information is added and put inside the corresponding TCP header fields 1840. In the preferred embodiment the acknowledgment information consists of an Acknowledgement number that identifies the last in-sequence byte received, and an ACK bit flag that indicates that the acknowledgement number field contains a valid value coln:31 lines 2-67 and coln:32 lines 1-2). Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ofek et al in the system of Tappan and The method of Tappan and can be implemented on any type of method means for writing an initial value into the index field of the datagram to be sent by the terminal which is taught by Ofek et al with a motivation in order to provide a trusted flow of packets.

Regarding claim 44, Tappan disclose all the subject matter of claimed invention with the exception of the terminal of, further comprising: means for reading second references in fields of an additional vector contained in a datagram received by the terminal; and means for storing the second references with communication session context data of the received datagram in a communication session context table of the terminal, wherein the initial reference written into each field of the vector of the datagram, to be sent by the terminal is one of the second references read in a field of the additional vector of the received datagram when the datagram to be sent belongs to the communication session of the received datagram. Ofek et al teach from the same or similar endeavor teach the terminal, further comprising: means for reading second references in fields of an additional vector contained in a datagram received by the terminal (the result of the sequential checks by the sequence of TTCs is validation that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communi cations path or route in the network 150. In general, the communications path includes second computing element, third computing element and so on, each of which has the TTC 120TTC functionality (as was described in detail in FIG. 9 and FIG. 11) capable of validating that the sequence data packets with the sequence of security tag vectors 711 have been transmitted over a predefined communications path or route in the network 150 see coln:34 lines 30-41); and means for storing the second references with communication session context data of the received datagram in a communication session context table of the terminal, wherein the initial reference written into each field of the vector of the datagram (the corresponding header fields are computed, the header is assembled, and the corresponding data bytes appended as a payload. If the TCP layer entity has to acknowledge the reception of data bytes along the other direction of

the TCP connection, the acknowledgement information is added and put inside the corresponding TCP header fields 1840. In the preferred embodiment the acknowledgment information consists of an Acknowledgement number that identifies the last in-sequence byte received, and an ACK bit flag that indicates that the acknowledgement number field contains a valid value coln:31 lines 2-67 and coln:32 lines 1-2) to be sent by the terminal is one of the second references read in a field of the additional vector of the received datagram when the datagram to be sent belongs to the communication session of the received datagram(FIG. 28 illustrates a system that generates and sends data packets with security tag vectors 711 over IP (Internet protocol) VPN (virtual private network) connection 2810 through a network interface, e.g., firewall, classifier, and policer, while mapping data packets with verified security tag vectors 111 to premium service see coln:39 lines 12-17).

Thus it would have been obvious to one of ordinary skill in the art to implement the method of Ofek et al in the system of Tappan and The method of Tappan and can be implemented on any type of method the terminal of, further comprising: means for reading second references in fields of an additional vector contained in a datagram received by the terminal; and means for storing the second references with communication session context data of the received datagram in a communication session context table of the terminal, wherein the initial reference written into each field of the vector of the datagram, to be sent by the terminal is one of the second references read in a field of the additional vector of the received datagram when the datagram to be sent belongs to the communication session of the received datagram which is taught by Ofek et al with a motivation in order to provide a trusted flow of packets.

Allowable Subject Matter

7. Claims 35, 41, 45, 48 are objected to as being dependent upon a rejected base claims, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is an examiner's statement of reasons for the indication of allowable subject matter: The closest prior art of record fails to disclose or suggest wherein the received packet/frame is modified in response to the jam signal by corrupting the framing whereby a network device receiving the modified packet/frame detects that the received modified packet/frame is invalid; wherein the inspection module is further configured to send the modified packet/frame in the second stream and reject the original packet/frame in the first stream, as specifically recited in claims.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Addeo et al. (US#7,903,565) is cited to show the method of monitoring a tandem connection in a MPLS telecommunication network.

The Xu et al. (US#6,970,464) is cited to show the method for recursive BGP route updates in MPLS networks.

The Chu et al. (US#7,872,991) is cited to show the methods and systems for providing MPLS based layer 2 VPN services.

The Somasundaram (US#7,715,380) is cited to show the apparatus and method for handling shared services through virtual route forwarding (VRF) aware NAT.

The Raj et al. (US#7,684,350) is cited to show the method and apparatus for distributing labels in a label distribution protocol multicast network.

The Raj et al. (US#7,609,620) is cited to show the method and apparatus using MPLS label distribution protocol (LDP) to establish LSPS for directed forwarding.

The Jalan et al. (US#7,698,455) is cited to show the method for providing scalable multicast service in a virtual private LAN service.

The Wilford (US#6,512,766) show the enhanced internet packet routing lookup.

The Dong et al. (US#7,496,096) show the method and system for defining hardware routing paths for networks having IP and MPLS paths.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M. Phan whose telephone number is (571) 272-3149. The examiner can normally be reached on Mon - Fri from 6:00 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dang Ton, can be reached on (571) 272-3171. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-2600.

11. Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at toll free 1-866-217-9197.

Mphan

05/18/2011

/Man Phan/

Primary Examiner, Art Unit 2475